

جامعة نايف العربية للعلوم الأمنية

كلية الدراسات العليا

قسم العلوم الشرطية



مهارات التحقيق الجنائي الفني في جرائم الحاسوب والإنترنت

" دراسة مسحية على ضباط الشرطة بالمنطقة الشرقية "

بحث مقدم استكمالاً لمتطلبات الحصول على درجة الماجستير في قسم
العلوم الشرطية - تخصص القيادة الأمنية

إعداد

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إشراف

الأستاذ الدكتور/ عبد الرحمن بن إبراهيم الشاعر

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College of Graduate Studies

Division : Police Science.

Specialty: Security leadership.

Thesis Abstract **Master degree Msc.** **Doctorate degree PhD.**

Thesis title: Skills of criminal investigation in computer and internet crimes.

Prepared by: Mohammad Nusair Alserhani.

Supervised by: Prof. Dr. Abdurrahman Ibrahim Asha'er.

Thesis disputation committee :

- 1-Prof. Dr. Abdurrahman Ibrahim Asha'er. (Supervisor & Reporter)
- 2-Dr. Abdullah Abdulaziz Almosa. (Member)
- 3- Dr. Salih Saad Assalih. (Member)

Disputation date : 28/04/1425 H Corresponding to 16/06/2004 G

Research Problem:

Computer and internet crimes investigation needs skills of a special nature in the police officers to be capable of dealing with this kind of investigation, this subject lead us to the main question: what are the technical skills of criminal investigation in computer and internet crimes the eastern province police officers have?

Research Importance:

It could be a pathway that lead us to the real skills available in the police officers in the field of investigation in the crimes of computer and internet, and a step for the workers in security fields to the importance of following the new in criminal fields. The results and findings could be of such importance for the strategic planners and for the training programs of the security departments and specially for the workers at the investigation field.

Research Objectives:

To specify the technical skills which must be available in the police officers to be able to investigate in the crimes of computer and internet, and to measure the technical criminal skills which available in the eastern province police officers, and internet and noticing if there is any statistical differentials in technical skills of criminal investigation in computer and internet crimes according to the demographic changes.

Research Questions:

What are the technical skills of criminal investigation in computer and internet crimes must be available in the police officers?

The availability of technical skills of criminal investigation in computer and internet crimes in the eastern province police officers.

Is there any statistical differentials in technical skills of criminal investigation in computer and internet crimes according to the demographic changes in the study?

Research methodology:

I used the analytical descriptive method using comprehensive social scanning with the aid of questionnaire formula. I distributed 340 questionnaire to all police officers working in the Eastern province police administration. The percentage of returned formulas is 91.2%.

Important results:

I found the following:

1. The technical level of knowledge of recognizing the computer hardware is moderate, statistically (2.961).
2. The technical level of knowledge of the basics of computer networking and its terms is low (2.250).
3. The technical level of knowledge of recognizing the different operating systems and dealing with it is low (2.383).
4. The technical level of knowledge of recognizing the different file extensions and its operating programs is low (2.194).
5. The skill level of capability to use internet services is moderate (2.603).
6. The skill level of knowing the tools and ways used in computer and internet crimes is low (1.831).
7. The skill level of knowing the important technical computer and internet security programs and tools is low (1.949).
8. The skill level of knowing the nature of these crimes is low (2.046).
9. The skill level of knowing the computer and internet crimes and the specificity of each crime is low (1.801).
10. The skill level of knowledge of some programs and tools used in the investigation in the crimes of computer and internet is low (1.974).

Dr. Amer Al-kobaisi

Head, Management Science Dept

Dr. Mohammad Abu Sak

Head, Criminal Justice Dept

Dr. Ahsan Taleb

Head, Social Science Dept

L. General Dr. Abbas Abu Shama

Head, Police Science Dept

Prof. Dr. Abdul-A'aty Alsayyad

Head, Colloge graduate studies

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Cyberspace

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Cybercrime

(Digital Evidence)

.Cybercrime

Computer Security Institute

FBI

.(Richardson, 2003)

International Planning and

Research Corporation (IPR)

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(IPR, 2002)

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:Skills

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:Computer -

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PC

.Server

:The Internet -

The Federal Networking Council

" : (FNC)

/ IP

/ TCP/IP

.(FNC, 1995) "

:Cybercrime -

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Joseph Jacquard

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.(UN, 1999)

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(Gustaluk, 2003)

.(Greek, 2000)

Computer-related

Computer Crime

Crime

.(Sieber, 1998)

.(Kovacich & Boni, 2000)

(Sieber,

– SRI

.1998)

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GAO

()

Gerald

Computer Crime

Crime by Computer

Computer Crime

Computer Fraud and

McKnight

Donn B. Parker

August Bequai

Leonard I. Krauss

Countermeasures

()

.(Sieber, 1998)

Piracy

Hacking

Internet Worm

(Sieber, 1998) Worms

Viruses

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.(Sieber, 1998)

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.(NUA, 2002)

(Brenner, 2001)

Transnational Crime

.(Herrera, 2001)

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(Ajeeb, 2001) , ,

.(ISU, 2003) , ,

Networking

.(Kovacich & Boni, 2000)

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Convention

on Cybercrime

.(COE, 2001)

.(Roman, 2001)

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.(Goodman, 2001)

Computer Abuse

.Computer Misuse

Harm

Information

Harm done *with*

done *to* information

Misuse Abuse

(Parker, 1998) information

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High Technology Crime

High-Tech Crime

E- E-crime Electronic Crime

(Haynes, E-cash E-commerce E-mail 2002)

Mobile New Zealand (New Zealand Police, 2003) Phone

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Philippe Drefus Informatique

Information

() Automatique

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Informatique

Static

.Dynamic

Information Technology Crime

Information Systems Crime

IT-Crime

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Computer Crime

Computer-related Crime

(Parke, 1998; Sieber, 1998)

Computer Crime

.(UN, 1999)

.Internet Crime

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Computer Crime

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.Cybercrime

William Gibson

Cyber

Cyber

Neuromancer

Cybernetics

Cyber

(Riemer, 2001)

Cyberspace

Cybercafe

Cybercop

Cyberlaw

Cybercrime

.(Pfaffenberger, 2001)

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Imaginable

Cyber

. Cyber

Brenner &)

.(Goodman, 2002 ; Etter, 2001

Computer Abuse

()

.Informatique

Cyber

Cybercrime

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.(Goodman, 2001)

(UN, 1999)

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Convention on Cybercrime

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.(COE, 2001

Resists Definition

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Cybercrime

OECD

(Sieber, " /

1998 :19)

(Roman,

.2001)

" Computer Crime

(Goodman, 2001 "

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" Parker

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.(USSC, 1993 :1

Parker

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(Parker, "

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1998 :57-58)

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Digital Evidence

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(Casey, 2000 :8)

OECD

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(Kovacich &

.Boni, 2000)

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: Malicious Code

(Grimes, 2001)

.symantec.com

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:Virus -

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(Skoudis & Zeltser, 2003)

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.(Bagnall *et al.*, 2000)

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(Grimes, 2001)

:Trojan Horse -

(Grimes, 2001)

.

:Backdoor -

(Skoudis & Zeltser, 2003)

.(Smith & Komar, 2003)

Trapdoor

.(Smith & Komar, 2003)

.(Chirillo, 2002 b)

.(Skoudis & Zeltser, 2003)

:Worm -

(Grimes, 2001)

.(Bagnall, *et. al.* 2000)

.(Denning, 1999)

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.(Oppliger, 2003)

(Denning, 1999)

.

:Hacking/Cracking -

Hacker

Hacking

(Taylor, 2002)

MIT

.(Levy, 2001)

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(Intranet)

(PC-Server)

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.(Denning, 1999)

.
:Unauthorized Use

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.(Icove *et al.*, 1995)

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:Denial of Service Attacks

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DoS

.(Cole, 2002)

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grc.com

(Gibson, "

.2002)

DoS

Distributed Denial of Service

DDos

.(Fithen, 2000)

.(Tulloch, 2003) Zombie

.(Vacca, 2002)

:Phreaking

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Phreaker

(Furnell, 2002)

.(Shinder, 2002)

:Data Sabotage

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.(Furnell, 2002) "

Crackers

.(Stephenson, 2000)

(Denning, 1999)

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:Data Theft/Alteration

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.(Shinder, 2002)

:Identity Theft

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.(Vacca, 2003 :4) "

.(Bidwell, 2002)

.(Mchlein, 2003)

.(Lane, 2002)

:Cyberfraud

-

.(Schneier, 2000)

Cyberfruad

eBay.com

.(Goodman & Brenner, 2002)

.(Denning, 1999)

:Embezzlement -

.(Shinder, 2002)

.(Denning, 1999) Salami

:Harassment -

.(Denning, 1999)

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Stalking

(Goodman & Brenner,

.2002)

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.() Chain Letters

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:Pornography

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.Child Pornography

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Proxy

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E-Mail Forgery

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POP

Webmail

.(Denning, 1999)

IP Address

.(Stephenson, 2000)

Remailers

.(Shinder, 2002)

(Denning, 1999) E-Mail Flooding

.(Shinder, 2002) E-Mail Bombing

:Software Piracy

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.(Shinder, 2002)

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.Crack

:Internet Gambling -

(Shiple, 2002)

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.(Creer, 2003)

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.(Creer, 2003)

(GAO, 2002)

:Cyber-Terrorism

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(Erbschloe, 2001)

.(Denning, 2000)

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(Stansell- "

Gamm, 2002)

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Denning,) "

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:(Furnell, 2002)

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Denning,) "

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.(1999

Chameleon

.(Furnell, 2002)

Cyberwar

.(Denning, 2001)

:Cyber-Laundering -

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Cyberbanking

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(Lilley, 2000)

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:Cyber-Espionage -

.(Icove *et al.*, 1995)

(Stephenson,

.2000)

.(Power, 2000)

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.(The HoneyNet Project, 2002)

Tools

Methods

-:

:Social Engineering

-

(Cole, 2002)

.(Mitnick & Simon, 2002)

.(Chirillo, 2002 b)

:Port Scanning -

Listening

(McClure *et al.*, 2001)

.(Chirillo, 2002 a)

Idle Scanning

Stealth SYN Scan

Erickson,)

Spoofing Decoys

.(2003

Port Scanners

Super Scanner WinScan

.(McClure *et al.*, 2001)

netcat nmap

:Password Cracking

-

.(Garfinkel *et al.*, 2003)

.(Denning, 1999)

root

.(Chirillo, 2002b)

Dictionary Attack

Brute-Force Attack

(Cole, 2002)

L0phtCrack Webcrack Unsecure

.(Chirillo, 2002 b)

:Packet Sniffing

-

Sniffers

(Shema & Johnson, 2004)

.(Skoudis, 2002)

sniffit tcpdump

EtherPeek Ethereal Windump

.(Rubin, 2001)

SuperSniffer Ethereal

:Vulnerability Scanning

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.(Furnell, 2002)

Bugs

.(Cronkhite & McCullough, 2001)

.... Titan SAINT SATAN

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:War Dialing

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(Schwartau, 2000)

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.(Furnell, 2002)

THC-Scan

Toneloc

.(Tulloch, 2003)

:Remote Administration

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.(Furnell, 2002)

.

.(Tulloch, 2003) Back Orifice Net Bus Sub 7

:Keystroke Monitoring

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.(Denning, 1999)

Keystroke Loggers

Hardware

Keyghost

.(Shinder, 2002) Data Interception Spector Pro

:Buffer Overflows -

.(Cole, 2002)

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.(Chuvakin & Peikari, 2004)

:Session Hijacking -

McClure *et al.*)

.(*al.*, 2001)

.Hunt Juggernaut

(Cole, 2002)

:IP Spoofing -

(Shinder, 2002)

.(Stephenson, 2000)

IP Address

.(Schwartau, 2000)

:Anonymity -

IP Address

Remailers

(Denning, 1999)

(Jamsa, 2002) Anonymizers

:Cryptography -

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.(Denning & Baugh, 1999)

Littman

DES

.(Littman, 1997)

.(Hollis *et al.*, 2001)

:Steganography

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(Denning, 1999)

.(Shinder, 2002)

StegoDos Steganos Hide and Seek

.(Vacca, 2002) SFS

.(Denning, 1999)

.(Shinder, 2002)

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.(Stephenson, 2000)

:(Icove, *et al.*, 1995)

Log Files

Computer Manuals

.

.(Kabay, 2002)

(Icove *et al.*,

1995)

Firewall Systems

Antivirus Systems

Intrusion Detection Systems

- -

.(Mandia & Prosise, 2001)

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(Icove *et al.*, 1995)

.(Mandia & Prosise, 2001)

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.(Icove *et al.*, 1995)

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eUniverse

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Maxus

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.(ZDNet News, 2000)

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Adrian

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Lamo

.(McCullagh, 2003)

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.(Hollis *et al.*, 2001)

FBI

CSI

.(Richardson, 2003)

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.(Kabay, 2002)

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.(Goodman, 2001)

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(Cowens &

Miora, 2002)

.(Stephenson, 2000)

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.(Goodman, 2001)

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.(Stucki, 2002)

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(Sterneckert,

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.(Middleton, 2002)

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;(Middleton, 2002)

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(Icove *et al.*,

.1995)

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.(Icove *et al.*, 1995)

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(Platt, 2002)

(The White House, 2003)

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Guidelines

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(Konvacich & Boni, 2000)

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:(Schultz & Shumway, 2002)

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(Icove *et al.*, 1995)

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(Mandia

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: & Prosis, 2001)

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(Schultz & Shumway, 2002)

.(Wright, 2000 d)

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.(Groover, 1996)

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.(Erdonmez, 2002)

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.(Icove *et al.*, 1995 ; Wright, 2000 d)

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.(Icove *et al.*, 1995

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Icove *et*

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.(*al.*, 1995

:Financial Auditor

Icove *et al.*, 1995 ; Stephenson,)

.(2000

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.(Wright, 2000 d)

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.(Wright, 2000 d)

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:(Wright, 2000 b)

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(Sammes & Jenkinson, 2002)

Hardware

(Casey, 2000) Software

.(Shinder, 2002)

.(Wright, 2000 a)

(Vacca, 2002)

(Shinder, 2002)

(Wright, 2000 f)

.(Wright, 2000 e)

(NIJ, 2001)

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.(Champlain, 2003)

CD-Rom

.(Casey, 2000)

:(Wright, 2000 c)

Bit

(Vacca, 2002) Bit Stream Back-up

(Smith & Komar, 2003)

(Kruse & Heiser, 2002)

.(Brenner & Frederickson, 2002)

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A4

(Sammes & Jenkinson, 2002)

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(AME Info, 2003)

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-: (Hardware)

.(Casey, 2000)

-: (Software) .

(Sammes & Jenkinson, 2002)

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.(Casey, 2000) Flash Memory

Manuals .

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.(Casey, 2000)

(Sammes &

.Jenkinson, 2002)

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Logs

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: **Firewall** -

(Cheswick *et al.*, 2003)

.(Black, 2000)

Logs

.(Northcutt *et al.*, 2001)

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: **Proxy Server** -

Application Gateway

.(Northcutt *et al.*, 2003)

(Brenton & Hunt, 2003)

.(Shinder, 2002)

Cache

(Hall, 2000)

(Stanger *et al.*, 2001)

.

.(Zwicky *et al.*, 2000)

Logs

:Intrusion Detection System

-

IDS

.(Bace, 2000)

(Signature)

Logs

(Northcutt & Novak, 2003)

: Honeypot -

(Spitzner, 2003)

: Auditing Tools -

Logs

.(Champlain, 2003)

syslogd Event Viewer

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BitStream Backup

.(Vacca, 2002)

ProDiscover Encase Safeback
.(Casey, 2000) DD (Shinder, 2002)

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(Mandia & Prorise, 2001)

String etSearch .
. Search

: -

.(Shinder, 2002) Format

Extractor GetFree
.(Shinder, 2002)

:Hexadecimal Editors -

(Sammes & Jenkinson,

.WinHex

Gander

2002)

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Office

Password Recovery Suit

Recovery Enterprise

Advanced PDF Password Recovery Pro

Advanced Archive Password Recovery

.Ace .Rar .Zip

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-

(Mandia & Prosis, 2001) Tracing Back

(Stephenson, 2000)

Tracert

Traceroute

NT/2000 /XP

Visualroute

Neotrace Pro

Domain Name

IP Address

.ACDSee ThumsPlus

(Sammes & Jenkinson, 2002)

Quick View Plus

.Compressing

.

Gzip

Winace Winrar Winzip

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.(Shinder, 2002)

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.(Sterneckert, 2004)

(Mclean, 2002)

.(Shinder, 2002)

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Cyberspace

.(Mendell, 1998)

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(Strang,

.2002)

IP

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ISP

Address

.(Davis, 1998)

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Tracing-Back

Visualroute

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Mandia &)

.(Prorise, 2001

.FBI

Carnivore

.(Smith *et al.* 2000)

Sniffing

(Holland, 2002)

Ahmad *et al.*)

.(2002

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(Erbschloe, 2001)

(NIJ, 2001)

DVD

CD-Rom

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(USSS, 2002)

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(Thompson, 1990)

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(Kruse & Heiser, 2002)

.(IOCE, 2000)

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.(Morrison, 1990)

DHCP

.(Shinder, 2002) Client/Server

TCP/IP

Peer-to-Peer Networks

.(Shinder, 2002)

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ISTS,)

.(2002

.(Sammes & Jenkinson, 2002)

(Shinder, 2002)

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Format

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(Vacca, 2002)

()

		*.doc
		*.htm *.html
Real Player		*.rm *.ram
XingMPEG		*.mpeg *.mpg

		*.wmv
		*.gif
		*.jpg
/	Winzip	*.zip
/	Winrar	*.rar

.(Sammes & Jenkinson, 2002)

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.(David, 1998)

Chatting

Furnell,)

.(2002

.(Stephenson, 2000)

.(Thompson, 1991)

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.(Denning, 1999)

(Shinder, 2002)

.(Vacca, 2002)

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.(Shinder, 2002)

IDS

Firewall

Proxy Server

Tracing

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Safeback Encase (Smith & Komar, 2003)

(Chirillo, 2002 a)

DD

ACDSee ThumpsPlus

(Kruse & Heiser, 2002)

Winrar Winzip

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Hardware

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(Erdoğan, 2002)

DNA

Dartmouth College

(ISTS, 2002)

Cyber-attack

IP Address

Spoofing

DDoS

Sniffing

Steganography

Signature

Root kits

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(Furnell, 2002)

(Erbschloe, 2001)

Cyber-attackers

(Etter, 2001)

(Smith, 2001)

(Hollis *et al.*, 2001)

(Wahlert, 1998)

(Goodman, 1997)

Technophobia

(Thompson, 1991)

(Carter & Katz, 1996)

(Groover, 1996)

(Kelly, 1995)

(Thompson, 1990)

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(Closed Questionnaire)

“Likert scale” ()

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(Pearson “ ”

Correlation)

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(Cronbach's Alpha)

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(SPSS) (Statistical Package for Social Sciences)

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(Pearson Correlation) " "

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(T-test) () -

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(One-way ANOVA) () -

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(Least-significant difference) LSD -

(Chi-Square) -

(SPSS) (Statistical Package for Social Sciences)

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	'	'	'	**							CD-DVD Rom
	'	'	'	**) Flash Memory Backup Tapes
	'	'	'	**							Analog Modem,) (DSL Modem
	'	'	'	**							Hub, Repeater, Router,) (Switch
	'	'	'	**							

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(Desktop, Laptop, Notebook, Handheld,

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Tablet PC)

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DVD

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(Backup tapes

Flash Memory

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(Analog Modem, DSL Modem)

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(Hub, Repeater, Switch)

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				'	'	'	'	'		
	'	'	**							Port
				'	'	'	'	'		
	'	'	**							Server
				'	'	'	'	'		
	'	'	**							Client
				'	'	'	'	'		
	'	'	**							Data Packet
				'	'	'	'	'		
	'	'	**							Bandwidth
				'	'	'	'	'		
	'	'	**							TCP/IP
				'	'	'	'	'		
	'	'	**							DHCP
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	'	'	**							Peer-to- / Peer Networks
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IP Address

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Port -

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Server -

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Client -

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Data Packet -

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Bandwidth -

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TCP/IP -

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DHCP -

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Peer-to-Peer Networks -

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										MS Dos
			**							Macintosh (OS 8/9, OS X)
			**							Linux (any distribution)
			**							UNIX (any flavor)

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	'	'	**						*.jpg
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	'	'	**	'						E-Mail	
	'	'	**	'						Search Engines	
	'	'	**	'						() Instant Messaging	
	'	'	**	'						IRC	
	'	'	**	'						Voice Chat	
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Instant Messaging ()

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Telnet -

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	,	,	**						Computer Virus
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	,	,	**						Trojan Horse
	,	,	**						Password Crackers
	,	,	**						Network Scanners
	,	,	**						E-Mail Flooders
	,	,	**						Key Loggers
	,	,	**						Packet Sniffers
	,	,	**						IP Spoofing
	,	,	**						Wardialers
	,	,	**						CC Numbers Generator
	,	,	**						Anonymity
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Computer Virus

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Computer Worm -

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Trojan Horse -

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Password Crackers -

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Network Scanners -

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E-Mail Flooders

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Key Loggers

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IP Spoofing

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CC Numbers Generator

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Anonymity

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Social Engineering

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	'	'	**	'							Firewalls
					'	'	'	'	'		
	'	'	**	'							Data Backup
					'	'	'	'	'		
	'	'	**	'							Antispam Software
					'	'	'	'	'		
	'	'	**	'							Antitrojan Software
					'	'	'	'	'		
	'	'	**	'							Undelete/ Unerase Tools
					'	'	'	'	'		
	'	'	**	'							Http Proxy Server TCP
					'	'	'	'	'		
	'	'	**	'							Intrusion Detection Systems
					'	'	'	'	'		
	'	'	**	'							Computer Security Auditing
					'	'	'	'	'		
	'	'	**	'							Connection Source Tracing
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Antivirus Software

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Firewalls

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Data Backup

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Antispam Software

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Antitrojan Software

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Undelete/ Unerase Tools

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Http Proxy Server

TCP

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Intrusion Detection Systems

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Computer Security Windows

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Connection Source Tracing

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	'	'	**						Hacking
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	'	'	**						E-Mail Flooding
	'	'	**						
	'	'	**						Data Sabotage
	'	'	**						
	'	'	**						Data Theft
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	'	'	**						E-Mail Forgery
	'	'	**						Software Piracy
	'	'	**						Sniffing
	'	'	**						Fraud and Embezzlement
	'	'	**						Phreaking
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	'	'	**						Identity Theft
	'	'	**						Cyber-Terrorism

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Hacking/Cracking

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Denial of Service (DoS)

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E-Mail Hacking

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E-Mail Flooding

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Data Sabotage

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Data Theft/Alteration

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Pornography

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E-Mail Forgery

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Software Piracy

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Sniffing

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Fraud and Embezzlement

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	'	'	**							(dtSearch)
	'	'	**							Archive) MS PDF Files (Office Files
	'	'	**							SafeBack DD) (Ghost
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Traceroute VisualRoute

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(Desktop, Laptop, Notebook, Handheld, Tablet PC)

CD-Rom ()

DVD

Flash Memory)

(Analog Modem, DSL

(Backup tapes

.Modem)

(Hub, Repeater, Switch)

(Erbschle,)

2001)

Data

Server

Port

IP Address

TCP/IP

Bandwidth

Packet

Peer-to-Peer

Networks

DHCP

(Erdonmez, 2002)

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/ XP

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Linux (any (Macintosh (OS 8/9, OS X MS Dos
Unix (any flavor) distribution)

(ISTS, 2002)

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*.ram *.jpg *.htm *.html *.zip *.doc
*.wmv *.pdf *.mpg *.mpeg *.rar *.rm

(Smith, 2001)

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Search E-mail Browsing
.IRC Instant Messaging () Engines

Newsgroups FTP Voice Chat

Telnet

(Erdonmez, 2002)

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Computer Virus

Password

Trojan Horse

Computer Worm

E-Mail

Network Scanners

Crackers

Packet

Key Loggers

Flooders

Wardialers

IP Spoofing

Sniffers

Anonymity

CC Numbers Generator

Social Engineering

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Firewalls

Antivirus Software

Antispam Software

Data Backup

Undelete/Unerase Tools

Antitrojan Software

Intrusion

Http Proxy Server TCP

Event

Computer Security Windows

Detection Systems

Connection Source Tracing

Viewer

E-Mail Tracing

(Furnell, 2002)

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(Erdonmez, 2002)

Denial of Service (DoS)

Hacking/Cracking

E-Mail Flooding

E-Mail Hacking

Data Sabotage

Data Theft/Alteration

Software

E-Mail Forgery

Pornography

Fraud and

Sniffing

Piracy

Phreaking

Embezzlement

Cyber-Terrorism

Identity Theft

(Wahlert, 1998)

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(Thumps

Winar Gzip Winzip

(Quick View Plus)

Plus)

Archive

(dtSearch)

Ghost Safeback DD

MS Office Files PDF Files

Traceroute VisualRoute

(Etter, 2001)

(Goodman, 1997)

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(Thompson, 1990)

(Hollis *et al.*, 2001)

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1. Ahmad, D., Dubrawsky, I., Flynn, H., Grand, J., Graham, R., Johnson, N., Kaminsky, D., Lynch, F., Manzuik, S., Permeh, R., Pfeil, K., Puppy, R., Russell, R. & K2 (2002) **Hack Proofing Your Network**. Rockland, MA: Syngress Publishing.
2. Ajeeb, website (2001). **Number of Internet subscribers and users in the region**. [Online]. available: http://eit.ajeeb.com/ViewArticle.asp?Article_ID=28132 [09-04-2003]
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